Integration Technical Note

ERICSSON

MITEL D/82 Station Set Emulation

Edition Note

This is the first edition of the *MITEL D/82 Station Set Emulation* Integration Technical Note. Information in this document applies to OneBox UM systems with version 3.0 or later.

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Overview

This Integration Technical Note (ITN) is written for dealers who are experienced with OneBox UM® and are familiar with its procedures and terminology. This document also assumes that you are familiar with the features and programming of the MITEL SX-200D or SX-2000 telephone system.

This document describes how to integrate OneBox UM with a MITEL SX-200D or SX-2000 telephone system, using a Dialogic D/82JCT-U PCI linecard. This integration is a station-set emulation integration. The Dialogic D/82 linecard emulates eight digital M430 telephone stations. These digital extensions provide DTMF signaling and voice communication between OneBox and the MITEL system. Calling- and called-party information is read by Dialogic from the LCD display of the emulated telephone set and passed to OneBox at the same time that a call is sent. The data is matched with the ringing extension and OneBox answers with the appropriate dialog. Message Waiting Indicator (MWI) operation is also performed over the digital station port.

Use this document in conjunction with the *Installing OneBox* and *Administering OneBox* guides and with the OneBox online help system.

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References

More current information may be available from the following documents:

- *Installing OneBox*
- *Administering OneBox*
- *Dialogic D/82JCT-U Installation and Replacement* spare parts document

Features Supported by this Integration

Tables 1 and 2 list the features supported with the MITEL Station Set integration.

Table 1. Call forward to personal greeting for these call types

Divert to OneBox on…	Supported
No Answer	Yes
Busy	Yes
Forward All	Yes
Do Not Disturb	Yes

Table 2. MITEL Station Set integration features supported

Feature	Supported	Notes
Automatic subscriber logon	Yes	
ANI/CLI	Yes	
“Announce Busy” greeting on forward busy calls	Yes	
Call screening	Yes	
Caller queuing	Yes	
DNIS	No	
End-to-end DTMF, attendant console	Yes	
End-to-end DTMF, proprietary telephones	Yes	
Fax ports	Yes	See note 1
Internal calling party ID for reply	Yes	
Live record, integrated	No	
Live reply to sender	Yes	
Message notification callouts	Yes	
MWI, set/clear	Yes	
MWI, inband/outband	Inband	
Networking, analog	Yes	
Overflow from OneBox to attendant	Yes	
Overflow to OneBox from attendant	Yes	
PBX-provided disconnect signaling	Yes	
Revert to operator	Yes	
Transfers, blind	Yes	
Transfers, confirmed	Yes	
Transfers, fully supervised	Yes	
Transfers, monitored	Yes	
Trunk ID for call routing	Yes	

Notes:
1. Requires separate industry-standard analog lines.

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Critical Application Considerations

Known limitations or conditions within the telephone system and OneBox that affect the integration performance are listed here. General recommendations are provided when ways to avoid these limitations exist.

- The Dialogic Configuration Manager defaults the PBX switch type as Norstar. The correct PBX switch type, MITEL_DNIC_M430 must be selected prior to starting the Dialogic service.
- The Dialogic D/82 board is polarity sensitive. The Dialogic service may fail to initialize the ports if the polarity of the PBX connection is reversed. Terminate all station wiring as shown in the section, "*Installing the Dialogic D/82 Physical Interface*" of this document.
- The Lines tab must have the correct extension numbers specified in each line.
- Station numbers cannot use 0 as the leading digit. Non-numeric DTMF tones cannot be used as any character in a station number. The maximum length of a station number is ten digits.
- Some MITEL telephone systems have automatic canceling of MWI on a regular basis, which means that the telephone system may turn off MWI at station sets before subscribers have called into their mailboxes and listened to their messages.
- OneBox cannot prevent the telephone system from turning off MWI, nor can it determine when this happens. Enabling Refresh MWI at Daily Maintenance on the Messaging tab can help compensate for this functionality, which may be disabled on some systems. Switch specific information is listed in this document.
- Subscribers can turn on MWI at other stations and turn off their own MWI. These features cannot be disabled.
- Normal MWI set commands take between 4 and 8 seconds per station.

Additional Considerations for SX-200D G1005 with F03.9 or Higher

- MWI is cleared from a subscriber telephone when it is used to call the port or hunt group (OneBox) that set the light, even if the user does not log on to his mailbox. MWI is also cleared when a subscriber connects via transferred call to the port or hunt group (OneBox) that set the light. You can compensate for this problem by changing the parameter, Preference for Refreshing MWIs, in the Advanced Message Waiting settings of the Integrations options dialog box.

Installation Requirements

Review the following information before performing any of the procedures in this document. To successfully install this integration, you must meet the installation requirements both for the telephone system and OneBox.

Telephone System Requirements

- On the SX-200D, revision G1005 F03.9 or higher software
- On the SX-2000, revision MS2006 (M23.2) or higher software
- One DNIC port for each integrated OneBox port
- One Superset 430 telephone for testing

OneBox Requirements

- A properly configured Microsoft Windows 2000 Server with Service Pack 2 telephony server platform
- OneBox UM software version 3.0 or later
- Ericsson software key diskette with the MITEL D/82 integration enabled. Be prepared to specify the PBX model when ordering the integration.
- Dialogic software version SR5.01.2 or later
- One Dialogic D/82JCT-U port for each OneBox voice port to be integrated
- One Dialogic D/82-U specific PBX interface cable assembly for each Dialogic D/82JCT-U card
- An uninterruptible power supply and surge protection device (recommended)

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Programming the Telephone System

Follow the recommendations and programming examples in this section to program the PBX for integration with OneBox. Programming examples show commands and parameters that are necessary for integration, but they do not represent PBX programming in its entirety.

Programming instructions for the two MITEL systems listed below are provided on the following pages:

SX-200D system with G1005 (F03.9) and higher software

SX-2000 system with MS2006 (M23.2) and higher software

Programming the SX-200D System with G1005 (F03.9) and Higher Software

This section explains how to program a MITEL SX-200D telephone system with G1005 (F03.9) and higher software. The installing technician should be familiar with programming this telephone system. For detailed programming information on the MITEL SX-200D, refer to the MITEL manuals that accompanied the telephone system.

Programming the DNIC Ports for OneBox

Assign Extension Numbers to DNIC Ports (Form 9)

Assign an extension number to the Bay/Slot/CCT for each OneBox port. Assign a distinct COS number to these extensions and assign the type as 430 for all OneBox ports.

Programming the Hunt Group (Form 17)

Program the OneBox ports into a circular hunt group. Arrange for over-flow to an operator or other group when all OneBox ports are busy. Choose an easily remembered number; subscribers will use this number to call OneBox.

System Options Assignment (Form 4)

In System Options, configure the following options. All other settings should be programmed as needed for your site.

Option	Setting
#02 Message lamp test enable	Enable
#07 Cancel 24-hour MWI	Do not enable
#20 Holiday messages	Do not enable
#22 Last party clear–dial tone	Enable

Class of Service for OneBox DNIC ports (Form 3)

Define the following Class of Service (COS) options to the COS number previously assigned in Form 9. All other assignments may be left at default.

Option	OneBox Ports
#203 Broker's call	Do not enable
#206 Call forwarding, busy	Enable
#207 Call forwarding, don't answer	Enable
#208 Call forwarding, external	Do not enable
#209 Call forwarding, follow me	Enable
#220 Do not disturb (DND)	Enable
#221 Clear all features	Enable
#229 COV VM port	Do not enable
#233 Never a consultee	Do not enable
#234 Never a forwardee	Do not enable
#235 Originate only	Do not enable
#240 Line privacy	Enable
#243 Non-busy extension	Do not enable
#251 Transfer dial tone	Do not enable
#258 Display prime as forwarder	Enable
#259 Message send	Do not enable
#502 Display ANI/DNIS/Class information	Enable
#504 ss420 optional Class/ANI display	Enable
#600 Superset, auto answer	Do not enable
#602 Superset, background music	Do not enable
#604 Superset, immed. Line select	Enable
#605 Superset, message	Do not enable
#606 Superset, enhanced answering Position	Enable
#609 Superset, night serv. Switch	Do not enable
#611 Superset, LIM new call ring	Do not enable
#612 Superset, headset operation	Do not enable
#613 Display ANI information only	Enable

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Trunk Programming for Call Routing (Forms 14 and 15)

Trunk assignments must be made if your application requires the call routing feature of OneBox. Trunks follow the standard Txxx format such as [T099]. (The xxx can equal any number from 000 to 999.) If individual trunk names are to be used, the names must retain the Txxx format. DID and Tie trunks must be renamed from the default (Xxxx) name to the Txxx format for OneBox to answer correctly. However, you can group trunks under one or more Txxx codes to reduce the number of call processor mailboxes required for trunk-specific announcements.

You can add four characters to the end of trunk names, which can be used to help end users identify the purpose of a trunk. Example names are T001LOCL, T002 BUS, or T003WATS.

Subscriber Telephone Programming

Subscriber telephones can be programmed at the telephone to forward to OneBox. If the automated attendant application will use monitored transfers, program FORWARD-NO ANSWER on subscriber telephones. If the application will use blind transfers, program FORWARD-BUSY/RNA on subscriber telephones.

Subscriber Station Class of Service (Form 3)

These options are critical to the proper operation of the integration. Options not listed here can be configured as necessary for the site requirements.

Option	Subscriber Extensions
#229 COV VM port	Do not enable
#232 Message waiting setup	Enable

Programming the SX-2000 System with MS2006 (M23.2) and Higher Software

This section explains how to program a MITEL SX-2000 telephone system with MS2006 (M23.2) and higher software. The installing technician should be familiar with programming this telephone system. For detailed programming information on the MITEL SX-2000, refer to the manuals that accompanied the telephone system.

Programming the DNIC Ports for OneBox

DNI Assignment Programming

Program all the OneBox DNIC ports in the DNI Assignment Program Channel 1 as "Superset 430". Leave Channel 2 blank.

Multi-line Set Programming

Program all required DNIC ports in the Multi-line Set Assignment Form [MU S A]. Set the ACD Agent field to No with the Call Announce field blank.

Programming the Hunt Group

In Group Forms, select Hunt Group Assignment Form [HU] and set up a circular hunt group with the DNIC ports used with OneBox. Choose an easily remembered number; subscribers will use this number to call OneBox.

1. Enter a pilot number for the hunt group, then press RECALL.
2. Define the hunt mode as circular.
3. Define the hunt group type as follows:
   → On MS2007 (Lightware 27, N-Stream, or higher), specify Voicemail.
   → On all other software versions, specify Voice.
4. Assign all of the integrated extension numbers as members of the hunt group, in ascending order.
5. In the Call Rerouting First Alternative Assignment Form [CAL R F], assign an overflow position for the hunt group.
6. In the Call Rerouting Assignment Form [CAL R AS], assign the Alternative number (from the above step) to the hunt group to be invoked when all DNIC ports are busy.

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System Options Assignment

Options here are critical to the integration. In the System Option Assignment Form [SYS O], program the following assignments. All other assignments should be programmed as needed for your site.

Option	Value
Multi-line set callback	blank
Message cancel timer [1–24 hours]	blank (See note 1)

Notes:
1. On versions that do not allow this field to remain blank, set it for 24.

Feature Access Code Assignment Programming

On the Feature Access Code Assignment Form [FE], make sure that the following features are programmed. The codes shown are examples only; specify a number appropriate for your site.

Feature Name	Primary Code
Message waiting activate	*131
Message waiting deactivate	*132

Programming the Class of Service Options

Assign a unique Class of Service (COS) for all DNIC ports used in this integration within the Class of Service Assignment Form [CLA O S]. All other options can be left unchanged.

Do **not** share this COS with other stations in the system.

Program all OneBox DNIC ports into the correct COS by using the Station Service Assignment Form [ST]. Use the same COS for day and both night modes.

Option	OneBox ports
ANI/DNIS trunk	No
Auto answer allowed	No
Call forwarding accept	Yes
Call forwarding (external destination)	No
Call forwarding (internal destination)	Yes
Call privacy	Yes
Camp-on tone security	Yes
Clear all features remote	Yes
Conference call	Yes
COV/ONS/E & M voice mail port	No
Do not disturb	Yes
Message waiting	No
Message waiting deactivate on off-hook	No
Multi-line set on-hook dialing	Yes
Redial facilities	Yes
Ringing line select	Yes

Trunk Programming

Trunk assignments must be made if your application requires the call routing feature of OneBox. In the Trunk Service Assignment Form [TRU S], names for trunks must follow the format Txxx, such as [T099]. (The xxx can equal any number from 000 to 999. DID and Tie trunks must be renamed from the default (Xxxx) name to the Txxx format for OneBox to answer correctly. This is also true for ISDN trunks coming into the ISDN Gateway Node. Group like trunks together for trunk-specific routes, if required.

You can add four characters to the end of trunk names, which can be used to help end-users identify the purpose of a trunk. Example names are T001LOCL, T002 BUS, or T003WATS.

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Subscriber Telephone Programming

Subscriber telephones can be programmed at the telephone to forward to OneBox. If the automated attendant application will use monitored transfers, program FORWARD-NO ANSWER on subscriber telephones. If the application will use blind transfers, program FORWARD-BUSY/RNA on subscriber telephones.

As an alternate method of programming for subscriber stations, build a call re-routing table. This method will allow subscribers to change forwarding to a different target. Also, the programming will not be lost in the event of a power failure.

1. In the Call Rerouting First Alternative Assignment Form (CAL R F), assign the OneBox hunt group pilot as the first alternative. Specify Busy, DND, and RNA if you will be using blind transfers. Assign them to reroute on CO lines, internal, DID, and TIE lines if applicable.
2. In the Call Rerouting Assignment Form (CAL R AS), assign subscriber stations to the First Alternative.

Installing the Dialogic D/82 Physical Interface

Each Dialogic D/82JCT-U card connects to the PBX with a Dialogic D/82-U PBX interface cable assembly. One end of the cable is a 25-pair male RJ-21 connector; the other end is a Dialogic mini-D 36-pin connector that plugs into the connector on the end plate of the Dialogic D/82 linecard. Table 3 shows the wiring connections for the DNIC digital stations. The stations connect to the even numbered pairs only. For additional information about installing the linecard, refer to the spare parts document shipped with the linecard.

Table 3. Dialogic D/82 wire cut-down

Pair	Color	DNIC 430 stations
1	White/Blue	
	Blue/White	
2	White/Orange	T (Port 1)
	Orange/White	R (Port 1)
3	White/Green	
	Green/White	
4	White/Brown	T (Port 2)
	Brown/White	R (Port 2)
5	White/Slate	
	Slate/White	
6	Red/Blue	T (Port 3)
	Blue/Red	R (Port 3)
7	Red/Orange	
	Orange/Red	
8	Red/Green	T (Port 4)
	Green/Red	R (Port 4)
9	Red/Brown	
	Brown/Red	
10	Red/Slate	T (Port 5)
	Slate/Red	R (Port 5)
11	Black/Blue	
	Blue/Black	
12	Black/Orange	T (Port 6)
	Orange/Black	R (Port 6)
13	Black/Green	
	Green/Black	
14	Black/Brown	T (Port 7)
	Brown/Black	R (Port 7)
15	Black/Slate	
	Slate/Black	
16	Yellow/Blue	T (Port 8)
	Blue/Yellow	R (Port 8)

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Programming Dialogic Configuration Manager

By default, the Dialogic Configuration Manager for software version SR5.01.2 sets the parameter PBXSwitch type to Nortel_Norstar. This parameter must be changed to the appropriate PBX type you are integrating with OneBox. Follow these steps to change the parameter for each D/82JCT-U linecard installed:

1. Click **Start**, point to **Programs**, point to **Dialogic System Software,** and select **Dialogic Configuration Manager-DCM**.
2. Stop the Dialogic service if it is running.
3. Double-click the installed D/82U linecard to open the Properties sheet.
4. On the Miscellaneous tab, select the **PBXSwitch** parameter.
5. In the Values list, select **MITEL_DNIC_M430** as the PBXSwitch type.
6. On the Telephony Bus tab, verify that the correct PCM encoding scheme is selected. The default value is **automatic** or **U-Law**; you must change this value to **A-Law** outside of the U.S. and Japan.
7. Click **OK**.
8. Repeat steps 3-7 for each D/82 linecard that is installed.
9. Restart the Dialogic service and close Dialogic Configuration Manager.

Configuring OneBox

Once the telephone system is programmed, you must configure OneBox for the integration. During setup, you'll need the following information, specific to this integration, to configure OneBox.

1. In the Installation Configuration dialog box, enter the name of your site in the Site Name box, the mailbox length in digits in the Mailbox Length box, and the first extension number for the first line in the First Extension box. Select **MITEL** as the manufacturer, **SX-200D** or **SX-2000** as the model, and **Dialogic D/82 430 set emulation** as the integration type.
2. In the Switch Section Options dialog box, enter the hunt group access code you configured previously in the *Programming the Telephone System* section. This is the pilot number users will dial to reach OneBox.
3. Once setup is complete, go to the Lines tab to verify that the extension numbers are assigned to the correct lines, and enable callouts to suit your application. For information on configuring callout settings, see the topic "Configure callout settings," in the online help system.

The settings related to the telephone system on the Switches tab are filled in correctly when you select the correct telephone system during setup. You might need to customize other settings on the Switch Sections and Integrations Options dialog boxes to suit the requirements of each application. Refer to *Installing OneBox*, *Administering OneBox*, or the online help system for more details about setting these parameters. Or, to display a tooltip that briefly describes a setting, pause the mouse over the setting for which you want more information.

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Completing the Integration

Now you are ready to complete the OneBox UM installation. See the guides *Installing OneBox* and *Administering OneBox,* or the OneBox online help system, for instructions. For general information on integrations, you may also wish to consult "Integrating OneBox with the Telephone System," in the *Installing OneBox* guide, and the topic "Integrate the Telephony Server with the telephone system," in the online help system.